REMARKS

A non-final Office Action was mailed January 16, 2004. A petition to revive for unintentional abandonment is being filed concurrently.

At the time of the Office Action, claims 1 and 3-12 were pending and stood rejected. By the foregoing, these claims are now cancelled. New claims 13-28 are provided. The rejections are traversed with respect to the art cited in the rejection.

The present invention provides for a simple and effective solution to avoid costly errors in the construction. In the process of creating a civil engineering structure or mechanical engineering objects, engineers and architects produce plans, i.e. blueprints, that represent their design ideas for houses, buildings, etc. By necessity, the plans are not to actual or real-life scale.

To represent objects, i.e. features, scales appropriate for the object and for the drawings are used. Even a residential structure, may require multiple scales. For example, to layout the distance from the house for retaining walls one scale (of perhaps 1" = 100') may be used, while for laying out the HVAC duct work another scale (of perhaps 1" = 5') may be used.

To complicate the matter further, engineers prefer scales that are direct ratios such as those above, but architects prefer scales that relate fractions to the real-life dimensions such as ½"=1'.

Contractors are charged with building from the engineer's or architect's plans. In the course of their workday, they measure dozens, if not hundreds of times, from plans and then try to implement the dimensions in real-life. While measuring a dimension of an object or a dimension between objects appears beguilingly simple, it is fraught with human error. To arrive at a dimension in a real-life unit system, such as feet-inches, the contractor using a regular ruler must multiply the dimension scaled from the plan to the actual dimension. However, mistakes are surprisingly easily made. A length of duct that scales 2¼ inches on ¾" = 1' blueprint is not 2¼ x ¾ = 1.6875 feet but 2¼ / ¾ = 3.000 feet in real-life. While a miscut duct is not expensive, the

craftsman's labor and the time involved in producing the incorrect product and the time required to fix it is expensive.

Thus, the present invention provides a measuring device that comprises a first set of indicia that are identical to a real-life scale, such as in the imperial units (feet-inches) or SI (metric system).

The measuring device also includes a second set of indicia that provide a scale that has been expanded (or for that matter, reduced) from the blueprint scale to match a dimension measured on the blueprint in real-life. The expansion or reduction is proportional, i.e. inverse, to the scale of the blueprint. Support thereof is provided at least in paragraphs 20-22 and in particular in paragraph 21 of the present's invention's U.S. Patent Publication.

Thus, in the above example, a craftsman using the measuring device of the present invention would not need to make a calculation. The craftsman would measure the 2¼" dimension on the blueprint (which in actuality represents 3 feet), go to the inventive measuring device and unroll it, extend it, or the like until the second set of indicia indicate 2¼ to him. He would then mark the beginning (if needed) and the end on a piece of duct to be cut or a joist to be used for securing an item on a wall etc. When the same craftsman (or another craftsman) would come along, the span between the beginning and end would measure to 3 feet using a standard ruler or tape measure. For at least a reason of convenience, the first set of indicia provides such a standard unit of measure.

None of the references cited, alone or in any combination, teach, disclose, or suggest the claimed invention.

U.S. Patent No. 5,251,382 to Hellar (Hellar) teaches a measuring tape for determining the center of a distance. Thus, if a wall measures 6 feet across (as detailed in the example), half the distance is 3 feet. Hellar conveniently provides a regular measuring scale and then compresses markings of the first scale by half to achieve a second scale. In other words, the second scale is indirectly proportional to the first scale: an indicia of 6 indicates a dimension which on the first

scale is exactly half that, 6 x ½ = 3 feet (or inches). Hellar fails to appreciate a second set of indicia comprising marks correlating to the common system of units and being adjusted linearly by the inverse of a scaling ratio.

U.S. Patent No. 5,230,158 to Wall (Wall) teaches a tape for measuring dimensions related to rafters, i.e. roofing applications. Roofs by custom and necessity are pitched. To build such a roof requires at its most basic, the construction of a triangle. Typically, this is a right triangle or an isosceles triangle. It is obviously easy to measure the horizontal portion of the triangle, the rafter run. It is also typical to have certain predetermined roof pitches. For example, a common pitch is 7 inches per 12 inches, i.e. 7:12.

Wall exploits these two facts and applies basic geometry of the Pythagorean Theorem to arrive at a false scale that saves roofers the ordeal of making calculations. Thus, in the example at col. 2, lines 52 et al., if the rafter run is 12'9½" on a regular scale; the length of the inclined member, the rafter member, can be found by consulting the false scale. Thus, the false scale at an indicia of 12 9½ provides the correct length to match the complimentary run.

While Wall is seemingly similar to the claimed invention, Wall fails to appreciate the present invention in its entirety. Wall provides the results of specific Pythogorean calculations on a linear measurement, but fails to appreciate a second set of indicia comprising marks correlating to the common system of units and being adjusted linearly by the inverse of a scaling ratio.

U.S. Patent No. 1,497,492 to Engel (Engel) teaches a multiple scale instrument. The scales are blueprint scales which share no relationship with each other except a common beginning and a common end point. Specifically, the respective sets of indicia do not relate to each other. Thus, measuring a distance of 10 units on the ¼" scale of the right most scale of the figure yields no discernable relationship to the other scales. In other words, in real-life the dimension is 40 inches but this needs to be calculated rather than measured.

The method claims are distinguishable over the cited art for reasons that rest on the same foundation as those in the presently claimed device.

The present invention also provides for a measuring device for determining a size of an object in real-life. The device includes a first set and a second set of regularly spaced indicia. A first mark and a second mark are disposed on the first set of indicia and are used to mark an object that is depicted at a scale other than real-life. Typically, the object is depicted at a reduced scale and, thus, the marks do not size the object at a real-life scale, but only size the object's depiction at the, presumably, reduced scale.

The device further claims a corresponding set of first and second marks disposed on the second set of indicia. Because the second set of indicia correspond to the first set and because the spacing between the indicia of the second set of indicia are related to first set of indicia by the inverse of the scaling ratio, the second set of indicia also does not have indicia that correspond to indicia of an established measurement system. Thus, when the corresponding first and second marks of the second set of indicia are used they relate to the object in real-life, but are unusable as a measuring guide in an established measurement system. Support thereof is provided at least in paragraphs 20-22 and in particular in paragraph 21 of the present's invention's U.S. Patent Publication.

None of the references cited, alone or in any combination, teach, disclose, or suggest the claimed invention for the reasons given above. Specifically, Hellar teaches a measuring tape for determining the center of a distance. The first scale measures the real-life size object in units of an established measurement system, and then a second scale measures a reduced object at a reduced scale.

The presently claimed invention is distinguishable in that the claimed device does not have a indicia which measure the object in real-life using units of an established measurement system. The claimed device has a scale to measure the object when it is not in real-life such as on a blueprint, and then another set of indicia, which correspond to the first set and have a spacing

that are either expanded or reduced, and which lay out the object in real-life. The expanded or reduced units of the claimed device are not in units of an established measurement system. The method claims are distinguishable over the cited art for reasons that rest on the same foundation as those in the presently claimed device.

All dependent claims are allowable for at least the same reasons as the independent claim from which they depend.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action. Any fee due with this paper, including any necessary extension fees, may be charged on Deposit Account 50-1290.

Respectfully submitted,

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